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ABSTRACT

Central Queensland University's Women into Science and Technology program aimed to broaden the access of women to higher education, improve their career opportunities and employment prospects, and address the personnel shortage in engineering and technology by encouraging mature age women to consider these fields. The distance learning program was designed to give open access to all women regardless of their background. No prerequisites or educational standards are required. The subjects have been designed to bridge the gap between the student's knowledge level and grade 12, thus meeting the requirements of entry into most university courses. Age is no barrier, students can enroll at any time of the year, the course is not tied to any semester system, and the women can work at their own pace. Fees and academic support costs have been kept to a minimum. Government funding is available to qualified students, but some funding time limits interfere with the course being self-paced. Rural Queensland is conservative concerning gender roles. A woman returning to study faces guilt at moving outside the traditional role of domestic manager and derogatory remarks from community and family. One of the early study skills courses also develops self-esteem, and women are further supported through a contact list of other students in their area, a newsletter, and visits by the course coordinator. (TD)

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An innovative flexible program for rural women

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Abstract

Today many universities have somewhere in their advertising the term 'flexibility'. These words are being used to describe on-line learning in most cases. They are no more flexible than the old traditional courses as the semester time frames are still in place for enrolment and completion. The mode of delivery is the only thing that can be regarded in any way flexible, but in this instance flexibility means that the student must provide their own access to the on-line materials. Flexibility does not equate with equity. One of the few courses that is truly flexible is the Women into Science and Technology program (WIST) run by the Central Queensland University. The course was designed specifically for rural women and is a bridging program which gives women the basic skills to allow them to apply for university entry and succeed. Students can enrol at any time of the year and the course is not tied to any semester system. While this does cause some administrative problems the course is eminently suited for women who in the main are still expected to be domestic managers as well, in some cases, as doing outside work whether that is on the farm or in the workplace. The course is also self-paced. The flexibility of this allows women to have time to complete the course whilst juggling their many other responsibilities. They are relieved of the pressure of meeting deadlines which allows them to complete their studies to the best of their ability. This paper will describe the history and the rationale of flexibility underpinning the program: the increasing numbers of women who are entering the course: the support given to these students who are studying externally and the importance of complete flexibility which removes stress and allows for empowerment through education while ensuring equity of opportunity.

The theme for this conference is 'Providing Quality Education and Training for Rural Australians'. One of the key components is 'Flexible Delivery' which is extended to mean 'using innovative strategies and delivery systems for rural Australians'. Universities have risen to meet the challenge of flexible delivery with on-line learning, a system that is no more flexible than the traditional systems. On-line learning is dependant on students being able to afford computers and the technology that will give them access to universities and courses. If a student cannot afford the necessary equipment they are denied access. In this paper I will focus on the accessibility of the rural sector to this technology. The Women into Science and Technology (WIST) program, created specifically to cater for rural women by Central Queensland University, will be presented as a case study of a successful model of a provider of a flexible program.

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The embracing of so-called flexibility by universities as on-line learning is basically a cost-saving exercise, which assumes that everyone has access to the technology. While the rhetoric from government initiatives suggests that the whole nation is plugged into a computer, networked, and has access to the internet, this is not the case in regional Queensland. There are numerous black spots throughout the state, which are not connected. For the remote (and not so remote) distance learners, therefore, there are still problems of access.

Anecdotal evidence suggests that even if students do have computers and the necessary technology to enable them to engage in on-line learning, the telephone lines are still not powerful or reliable enough to sustain connection (Wooller & Warner, 1998, p. 342). Although access to the technology appears to be increasing in some regions access in others is still limited. The economic downturn in the rural sector also continues to limit the number of people who can actually afford computers and even if they can, the lines in regional centres are not capable of sustaining constant contact to servers. In Queensland in March 1999 only 44.7% of farms even had a computer and of those only 15.6% have Internet access. While this does show an increase on 36.5% and 9.9% respectively in 1998, there is still need for improvement (http://www.abs.gov.au/a). Other states all show better figures than Queensland Presently, therefore, some 84% of rural households in Queensland are denied access to 'flexible' on-line university programs. While there may be public access in places like libraries and schools many of these systems have not been upgraded and cannot handle the software packages necessary for students to successfully complete courses within the traditional timeframes which are still in place. Furthermore, as Strickland and Jordan (1998, p. 108) suggest just having a computer and internet access does not guarantee that the student will learn to the best of their ability. Limited knowledge of how to use their computer can result in students failing irrespective of their ability to master the concepts and skills of the discipline area they are studying. Strangely enough there is still the perception by some, that just giving the students access will automatically result in success. For example, in a report presented by Clayton, Lynch and Boyle in 1998, it was suggested that a successful student had access to up to date communication technology. So presumably lack of computer access rather than ability was deemed the determinant of mediocre results or failure.

How are the present courses flexible? Does this mean that students have flexibility of enrolment? of course duration? In most cases flexibility, as advocated by universities, is a buzz word used to mean on-line either of management, content or both. Flexibility, then, is usually tied to delivery rather than enrolment or length of course (Wooller & Warner, 1998a). Increasingly universities are moving towards students being responsible for their own registration, enrolment and program management via complex on-line management systems. Again cost-cutting is being concealed under the guise of open access.

As Queensland is the most decentralised state in Australia, it has always been problematic to provide equitable access to goods and services for all Queenslanders. The most disadvantaged group is the rural sector. (Dept Prime Minister & Cabinet, p 1988) Attempts by successive governments to address this were, in the main, as Lesley Warner (1994, p. 116) states "unacceptable in a democratic society...as they were mainly exercises in power". Even more disadvantaged are rural women who according to Dorothy Lucardie (1994. p. 111) "have always faced limited access to educational opportunities" and while there has been some improvement in some of the southern states, in Queensland the situation has not changed all that much

In 1987 at the then University College of Central Queensland (UCCQ), in Rockhampton, a working party was put into operation to examine both the educational needs of rural women and the lack of women entering Science, Engineering and Computing. The UCCQ has since become Central Queensland University (CQU), which is a regional institution that initially serviced the Central Queensland district, an area of some 450 000 sq km, with a very dispersed population of 500 000 people. As a regional and rural area it has been designated a low socio-economic region. It has been a provider of distance education since 1972 with Science courses being the first offered. While CQU continues to service the Central Queensland district the focus has taken on a more global perspective.

Through the Innovative Rural Education and Training Program, a grant was obtained to develop an open flexible distance learning program that would give women a second chance to succeed in tertiary education. The working party employed a coordinator to do a literature search and travel throughout the district to ascertain the

educational needs of rural women and devise strategies in order to meet those needs. From those findings the philosophy of the WIST course was developed. Subsequently funded by the higher education equity program HEEP, WIST is now mainstreamed under the banner of CQU. It has been legitimised by the Queensland Tertiary Admissions Centre (QTAC) as a bridging course.

The result was the Women into Science and Technology (WIST) course. Given the expertise on distance education already available, external study was chosen as an appropriate model for the program. It also has completely open entry, flexible start by dates and is entirely self-paced. The course offers introductory subjects in Biology, Chemistry, Physics and Computing as well as basic Mathematics and English. There are no due dates for submission of assignments or completion and phone tutorials and counselling are part of the package for the very heavily discounted, Austudy funded, QTAC approved course.

The Women into Science and Technology (WIST) was initiated in 1989. This was precipitated by the low percentage of women entering non-traditional fields. The aim of the program was to broaden the access of women into higher education and improve their career opportunities and employment prospects. The specific goals were: firstly to address the anticipated short-fall in Engineering and Technology by encouraging mature age women to consider these fields as career options. Secondly, to provide courses for women whose educational backgrounds included only limited mathematics, computing and science experiences (Warner & Greaney, 1990).

The program was designed to give open access to all women regardless of their background. No pre-requisites or educational standards are required. The subjects have been designed to address any short-falls in educational levels achieved by the participants. Each, as a foundation subject, bridges the gap between where the student is presently at and Grade 12, thus meeting the requirements of entry into most university courses. Age is no barrier. The only determinant is that the applicants have to be female. Although this still holds true the subjects have not been designed to provide additional assistance to women for whom English is a second language.

For the rural woman there are a number of obstacles, which need to be addressed if she wishes to study. The economic downturn in the rural sector has placed a great burden on rural women. Lucardie (1994, p. 112) states: "For a rural woman to return to study she is often required to maintain all her other roles and responsibilities: childrearing, housekeeping, farm work, paid employment, etc". The designers of the course recognized that this was a huge barrier and therefore, the course is fully self paced. Thus there are no deadlines and the women can work at their own pace to complete. This not only causes a number of administrative problems in keeping track of the progress across the academic year and between years but it also acknowledges the many roles women have to take.

As an acknowledgement that few rural women (and women in cities) have control of the financial situation and considering the lack of money that can be devoted to a woman returning to study, the costs of the subjects had to be kept very low. Accordingly fees have been calculated so that they just cover the cost of the production of materials, postage, stationary and marking. The lecturers and tutors are very generous with their time which enables academic support costs to be kept to a minimum.

However, if the students meet the criteria, they can seek government funding to do the course. The program is Austudy funded but once the student enters the program, through one of Centrelink's educational funded schemes, they have to adhere to the conditions of the funding. Single parents coming in through the Jet program receive $30.00 per week on top of their parenting support pension but only for thirteen weeks. In order to be eligible they have to take two subjects. They may choose to do only one subject for which they receive $15.00. If they are seeking Austudy they have to do three subjects in order to get the funding and the timeframe is still thirteen weeks. Both these groups are eligible for $200.00 educational funding from Centrelink. The course then ceases to be self-paced. Any student on a pension will get the subjects free from WIST. This was one of the conditions laid down by DETYA and result in the University receiving money from that source for the course. While it is beneficial for the students who are on pensions to receive this extra financial support it also brings problems for them. If the student does not complete in the required time they may have to refund the money to Centrelink.

The traditional gender roles in regional Queensland are almost set in concrete and were identified as part of the barriers. An examination of later research findings validated this. In a study of a small town in Victoria Ken Dempsey (1994, p. 41) found that: "men used the resources and labour of women for facilitating their paid work, and their leisure and prestige-enhancing activities, without adequate reciprocity". Similar findings were made by Katherine Gibson (1994, p. 63) as the result of research in the Mining towns in Queensland. She states: "the prominence of traditional images of masculine (and feminine) identity constrain even mundane efforts towards women's social independence". From feedback, in 1987-8 the working party and the coordinator had acknowledged that gender was an issue and developed strategies to meet the educational needs of rural women. The outcome provided the rationale for the program. As Warner (1994, p. 120) states:

> *The issues that were identified can be summarised as follows: negative attitudes towards entering non-traditional study and careers, poor study habits and learning skills, impact of traditional roles in terms of returning to study, impact of conservative values, suitability of the program in meeting rural women's needs and problems of learning at a distance.*

At the same time that this work was being done in Central Queensland, Dorsman and Kimberly were undertaking similar research in Victoria. They identified the range of barriers as attitudinal, situational and systemic (Lucardie, 1994, p. 111). In 1996 TAFE in Queensland in their report on *The skill & delivery needs of rural & regionally isolated Queensland women* used Lucardie's barriers. While it is problematic to stereotype rural women as one cohesive group, the TAFE study examined women from different communities. Their research was conducted across four groups: women in mining towns, on isolated properties, Aboriginal and Torres Strait Islanders and women from non-english speaking backgrounds (p33-4). There were some differences due to location but there was also consistency in their needs that corresponded to the barriers earlier identified by Lucardie and the working party for WIST. Basically all three studies highlighted similar concerns..

After the issues had been identified, a set of strategies were devised at CQU in order to overcome some of these barriers. It was acknowledged that a small team of enthusiasts could not break down the barriers but rather needed to empower the students so that they could climb over them. One approach was to develop the specific

subject entitled *Communication Pathways into University:* the study skills and literacy program designed for the WIST program. Through a series of activities and questions, students are encouraged to develop both academic skills and through a series of exercises, self evaluation and self-esteem. They are shown that they do have skills that can be correlated with those given value by society. This consciousness raising activity in the context of a communications skills package is designed to give women the strength to resist or overcome adversity as well as specific communication skills.

One of the biggest barriers, which needs to be overcome, is that of the perceived belief that women cannot do science, mathematics and computing. Many women are actively dissuaded, through the education system as well as by peers and family, to enter these fields, as they are not seen to present a viable career path for girls and women. According to Lynda Birk (1986, p. 185) for science gender does matter. She states "women generally have rather different skills and experiences than men, skills and experiences that are denied to science". Women use computers frequently yet they do not enrol in computer science courses. There seems to be a perception that women believe they are as capable as males but, as Damarin (1992, p. 365) discusses their response is "we can but I can't".

Textbooks, even today, do not cite women's expertise in the non-traditional areas. In order to make women aware of the hidden contributions in all these areas *Communication Pathways* includes a number of herstories profiling women who have been successful in science. Promotional material also focuses very heavily on women's successes in all fields of science, computing, mathematics and engineering. The coordinator networks extensively across the state with government institutions, schools, libraries and community development officers to ensure that the information about the course is as widely dispersed as possible within the rural sector.

Many of the women entering the program have very low self-esteem and many doubts about their abilities. Through the early study skills modules, they are encouraged to re-assess their abilities, to recognize that the skills that they have acquired in their domestic roles can be equated with the skills needed for academic study. In this section the students are also introduced to lateral thought and can begin to critically examine their own positions within society. They are encouraged to broaden their

boundaries and to question, not only their own beliefs about their abilities, but also others.

Rural Queensland is still conservative. For a woman located in these types of communities, returning to study is a challenge which is large. She not only has to conquer her own doubts and insecurities, guilt at moving outside the traditional role of domestic manager but also derogatory remarks from both community and family. As Lucardie (1994, p. 111) states: "Women attempting to study found a lack of encouragement by family and friends, and a lack of community and social support". In order to combat this lack of support students are sent contact lists which supply them with names and phone numbers of other WIST students in their immediate area. They are sent newsletters six times a year to help them to feel a part of the course. The coordinator travels extensively throughout Queensland during the year and runs workshops on essay writing, grammar and study skills and visits the students in their homes. Students are encouraged to contact the WIST coordinator if they have problems of any sort. If the students are close to one of CQU's campuses or Learning Network Queensland centres they are given access to library facilities, computers and support. Telephone tutorials can be arranged if the student is having academic problems.

Distance education is always difficult but for rural women it is a viable alternative to travel and a lack of local facilities such as child care. If finance is a problem than all the student has to do is to contact the coordinator who will then ring her back. The university is then paying for the cost of the call. Most of the women who enter the WIST program are highly motivated and very pro-active. The coordinator actively encourages the students to become independent learners but support is there if needed.

Since 1989 the subjects have been reviewed and amended to meet the changing needs of the students. This year a new computing subject has been introduced. The original computing package has also been upgraded and uses current software. Each of the program providers are very concerned that the student's needs are met. The inclusion of Study Skills in the *Communication Pathways* packages was the result of feedback from the students. As mature aged women they needed to be reminded of these skills.

The swing from teacher oriented learning to student centred learning also causes some problems for these women who came through the traditional school system.

No student, if they submit the work, will fail because they can resubmit the assessed work until it is of the required standard. The WIST course prepares the students for the very structured, still patriarchal university system. It provides them with the tools so that they can succeed in degree courses.

WIST commenced in 1989 with a target of 20 women with 20% of those women going into full time study. In 2000 the 2000th student entered the program. In any one year an average of 30% of these students go on to further study. Some use the course to enter into TAFE, undertake in house training, upgrade basic skills that will enable them to apply for a better job or just for personal development. We have many success stories on our books. At present there are two ex-WIST students undertaking post graduate study in Rockhampton. One is doing a Master's degree in Chemistry, the other in Molecular Biology. These women started WIST in 1996. Both had children and one was a sole parent. When they started WIST, they had doubts about their abilities and neither had any idea that they would go on to further study.

The original goal of the WIST program was to "broaden the range of career options for rural and isolated women by providing an alternative entry path to higher education especially in the Government Priority areas of Science and Engineering". This has not changed but has been extended to include all women who see empowerment through education.

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